



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application

Inventors: Shinde, et al.
Appli. No.: 10/771,099
Confirm. No.: 2047
Filed: February 2, 2004
Title: PROBE CARD CONFIGURATION FOR LOW
MECHANICAL FLEXURAL STRENGTH
ELECTRICAL ROUTING SUBSTRATES

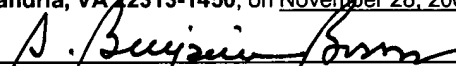
PATENT APPLICATION

Art Unit: 2829
Examiner: Chan, Emily Y.

Customer No. 23910

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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 (Attorney Signature)

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Signature Date: November 28, 2005

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Sir:

The Remarks provided in this Pre-Appeal Brief Request for Review respond to the Advisory Action Before the Filing of An Appeal Brief, mailed on October 19, 2005 (the "Advisory Action"), and address the rejections set forth by the examiner in the Final Office Action mailed on June 27, 2005 (the "Final Office Action").

The present invention relates to, *inter alia*, a test system for testing integrated circuits on a wafer, including a probe card with mechanical center supports for low mechanical flexural strength (*i.e.*, relatively flexible) electrical routing substrates. Claims 1-16, 26-31, 43-46, and 50-53 are pending in the Application. The Final Office Action and the Advisory Action note that certain claims stand rejected, while the others were deemed allowable or objectionable. Only the rejected claims are appealable, and are addressed in this Pre-Appeal Brief Request for Review ("Pre-Appeal Brief"); they are claims 1-11, 14-16, and 50-53.

The Final Office Action maintained the previous rejections under 35 U.S.C. § 102 and § 103 from the previous Non-Final Office Action, mailed on January 25, 2005. Specifically, claim 1 stands rejected under § 102(b) as anticipated by U.S. Patent No. 6,438,328 to Eldridge et al. (“Eldridge”), while claims 1-4, 6-12, 14-15, and 50-53 stand rejected under § 102(b) as anticipated by Applicants’ admitted prior art of Fig. 2. Only the Section 102 rejections are addressed below because claims 5 and 16, rejected pursuant to Section 103, are allowable if the Section 102 rejections are overcome.

Section 102(b): Claim 1 Is Not Anticipated by Eldridge

Claim 1 as amended claims:

A probe card assembly for testing a device comprising:

...
support means positioned against a second surface of the substrate substantially opposite said probe contacts *without electrically connecting to the probe contacts*, the support means transmitting probe forces introduced when the probe contacts are urged against corresponding contacts on the device being tested. Emphasis supplied.

Applicant has argued that claim 1 as amended is not anticipated by Eldridge because Eldridge does not teach or disclose (1) “support means positioned against a second surface of the substrate substantially opposite said probe contacts . . .” (see Response to Final Office Action filed September 27, 2005 “Response to Final Office Action” at page 11, first full paragraph) and/or (2) support means positioned “without electrically connecting to the probe contacts.” (See Response to Final Office Action at page 11, third full paragraph.)

In response, the examiner argued that Eldridge anticipates claim 1 of the present invention because “the support means (335) of Eldridge (‘328) is inherently supported by a mechanical means . . . [which] would meet the claimed support means in” claim 1 of the present invention. Final Office Action at 4. Applicant respectfully disagrees that claim 1 is anticipated, for the following reasons.

First, the examiner's argument depends upon the examiner's incorrect characterization of "support means (335) of Eldridge." Element 335 is not a support means at all; rather, it is a terminal. *See* Eldridge Fig. 3 and Col. 3, ll. 44-44. As such, even if the terminal 335 of Eldridge provided mechanical support, as the examiner asserts, the terminal 335 cannot correspond to the "support means" of the present invention, which functions in "transmitting probe forces introduced when the probe contacts are urged against corresponding contacts on the device being tested." The terminal 335 of Eldridge connects to resilient contact elements (334) that *flex, rather than provide support*, to transmit probe forces from substrate (324). In contrast, in Applicants' specification, support pins 72 and 74, and spheres 76 and 78 of Fig. 3 support the substrate 45 to transmit probe forces as claimed in claim 1. In other words, Eldridge does not teach or enable the terminal 335 to be a support as claimed in claim 1, and as supported by Applicants' specification.

Second, the examiner has failed to refute or even to address Applicant's showing that Eldridge does not anticipate claim 1 as amended because that claim is limited to "support means positioned . . . *without electrically connecting to the probe contacts . . .*" (emphasis supplied). In fact, the terminals 335 of Eldridge cited by the examiner in fact *are connected* to the probe contacts 336 by lines internal to substrate 324. *See* Eldridge Fig. 3 and Col. 3, ll. 44-46; 48-52 ("Space transformer 324 supports terminals 336 and 335, which are connected appropriately. . . . In general, a lead from a tester will connect to a terminal 331, which is connected in turn to a terminal 332, then through resilient contact elements 333 and 334 to a terminal 335 and finally to a corresponding terminal 336"). Applicants' support pins 72 and 74, and spheres 76 and 78 of Fig. 3, however, make no electrical connections on substrate 45. Because Eldridge does not disclose each element as arranged in Applicants' claim 1, Applicants maintain that claim 1 is not anticipated by Eldridge.

Section 102(b): Claims 1-4, 6-12, 14-16, and 50-53 Are Not Anticipated by Fig. 2

Applicant disagrees with the examiner's rejection of the above-referenced claims based on anticipation by Applicant's admitted prior art in Fig. 2 of the present Application. The only independent claims at issue in this rejection are claims 1 and 51. Both of these independent claims are patentable at least because the examiner has failed to establish that the cited art teaches a limitation common to both claims: "*support means positioned against a second surface of the substrate substantially opposite said probe contacts . . .*" (emphasis supplied). Referring to Fig. 3 of the present application, the transformer substrate 45A has a first surface with probe contacts. The support means that are "substantially opposite said probe contacts" are support pins 72 and 74, and spheres 76 and 78, which make contact near the center of the transformer substrate 45A on the opposite side of the substrate 45A, and within the boundary defined on the first surface of the substrate 45A by the outermost probes 16. See Specification ¶ [0044]. In contrast, the examiner has not indicated any "support means" in the cited art, Fig. 2, that are "substantially opposite" the probe contacts. Rather, the examiners cited elements (62, 64, 66, 68) that extend beyond the outer boundaries of the probe contacts (16), while the cited elements (52, 56, 58) extend either beyond or lateral to the probe contacts (16). Because Fig. 2 does not teach or disclose the "substantially opposite" limitation, the examiner cannot demonstrate how Fig. 2 anticipates claims 1 and 51. Dependent claims 2-4, 6-12, 14-16, 50, and 52-53 are believed allowable as not anticipated by Applicants' Fig. 2 based at least on their dependency on claims 1 and 51.

Conclusion

In summary, the claims as amended are not anticipated by Eldridge. Eldridge does not disclose or enable a "support means positioned against a second surface of the substrate substantially opposite said probe contacts *without electrically connecting to the probe contacts*, the support means transmitting probe forces introduced when the probe contacts are urged against corresponding contacts on the device being tested." Because the examiner cannot demonstrate

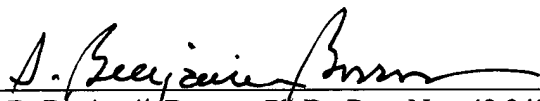
that Eldridge teaches and discloses each element of independent claims 1 and 51, the rejected claims are patentable over the cited art.

In light of the above remarks, claims 1-16, 26-31, 43-46 and 50-53 are now all believed to be in condition for allowance. Accordingly, reconsideration and allowance of these claims is respectfully requested.

A Notice of Appeal is included herewith, as well as a request for a two-month extension of time and the appropriate fee. Should any additional fee be due, the Commissioner is hereby authorized to charge the fee to Deposit Account No. 06-1325.

Respectfully submitted,

Date: November 28, 2005

By: 
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